CLAIMS

What is claimed is:

1   1.   A method for classifying an item, the item having a plurality of attributes,

2   each attribute having a value, the method comprising:

3   selecting an attribute of the item;

4   comparing the value of the attribute of the item to a set of possible attribute

5   values, the possible attribute values being associated respectively, with item

6   classifications;

7   selecting at least one item classification for the item based on the comparison; and

8   determining a confidence score for each selected item classification for the item.

1   2.   The method of Claim 1 wherein the set of possible attribute values

2   comprises an engineered knowledge base of classifications, each classification associated

3   with at least one attribute and each attribute associated with at least one attribute value.

1   3.   The method of Claim 1, further comprising:

2   selecting a second attribute of the item if one selected item classification does not

3   have a sufficiently high confidence score;

4   comparing the value of the second attribute of the item to a set of possible second

5   attribute values, the possible second attribute values being associated, respectively, with

6   item classifications;

7   selecting at least one item classification for the item based on the second

8   comparison; and

9   determining a confidence score for each selected item classification of the second

10   comparison.

1   4.   The method of Claim 1, further comprising:

2   comparing the value of the attribute of the item to a second set of possible

3   attribute values, the possible attribute values being associated respectively, with the item

4   classifications;

5   selecting at least one item classification for the item based on the second

6   comparison; and

7   determining a confidence score for each selected item classification for the item.

1   5.   The method of Claim 3 wherein each set of possible values comprises an

2   engineered knowledge base, the engineered knowledge bases comprising at least one of a

3   primary engineered knowledge base of key item attribute values, an engineered

4   knowledge base of a classification schema, and an engineered knowledge base of an

5   alternated classification system.

1   6.   The method of claim 3 wherein the engineered knowledge base of a

2   classification schema contains a plurality of item classifications mapped to a second

3   classification schema.

1   7.   The method of Claim 1 wherein comparing the value of the attribute and

2   selecting at least one item classification are performed independent of a subject matter of

3   the item classifications, the subject matters including one or more of electronic, office

4   products, and medical supplies.

1   8.   The method of Claim 1 wherein comparing the value of the attribute and

2   selecting at least one item classification are performed independent of a language of the

3   item and independent of a language of the set of possible attribute values.

1   9.   The method of Claim 1 wherein the attribute is a part number of the item.

1   10.   The method of Claim 1 wherein the attribute is a description of the item.

1   11.   The method of Claim 1 wherein comparing the value of the attribute

2   comprises performing a search for a matching value among the set of possible attribute

3   values.

1   12.   The method of Claim 1 wherein comparing the value of the attribute

2   comprises performing a search for a value among the set of possible attribute values that

3   is within a range.

1   13.   The method of Claim 1 wherein determining a confidence score comprises

2   determining a percentage of items in an item classification that contain an attribute value

3   found in the respective comparison and assigning a higher confidence score for attribute

4   values contained in a higher percentage of items in the respective item classification.

1   14.   The method of Claim 1 wherein determining a confidence score comprises

2   determining a degree of similarity between the value of the attribute and the

3   corresponding attribute value of the selected item classification.

1   15.   The method of Claim 1 further comprising presenting the item and the

2   selected item classifications from the comparison to a user.

1   16.   The method of Claim 1 wherein the confidence scores are presented to the

2   user in association with the corresponding item classifications.

1   17.   The method of Claim 1 further comprising analyzing the attribute value of

2   the item against a stop list and excluding any stop list words from the comparison.

1   18.   The method of Claim 1 further comprising:

2   presenting the selected item classifications to a user; receiving a designation from

3   the user of at least one selected item classification; and classifying the item in the

4   designated item classifications.

1   19.   The method of Claim 1 further comprising comparing confidence scores

2   for all selected item classifications and classifying the item in at least one of the selected

3   item classifications based on the confidence score comparison.

1   20.   The method of Claim 1 further comprising automatically classifying an

2   item if the confidence score is above a threshold and presenting the selected item

3   classifications to a user if the confidence score is below the threshold.

1   21.   The method of Claim 1 wherein comparing the value of the first attribute

2   comprises successively executing a plurality of searches, each successive search having

3   more general criteria and wherein determining a confidence score comprises assigning a

4   lower confidence score to the results of each successive search.

1   22.   The method of Claim 1, further comprising:

2   selecting a classification for the item;

3   supplementing the set of possible attribute values with attribute values of the item.

1   23.   The method of Claim 22 wherein the set of possible attribute values

2   initially contains no attribute values, the method further comprising repeating selecting an

3   attribute, comparing the value of the attribute, selecting at least one item classification,

4   selecting a classification, and supplementing the set of possible attribute values for a

5   plurality of items so that as each item is classified, the set of possible attribute values is

6   increased.

1   24.   A method for classifying an item, the item being associated with a

2   plurality of descriptive terms, the method comprising:

3   searching a reference list of descriptive terms to find descriptive terms

4   corresponding to the descriptive terms associated with the item, the reference list of

5   descriptive terms including at least one item classification for each descriptive term and a

6   confidence score for each item classification of each descriptive term;

7   compiling the item classifications and associated confidence scores for each found

8   corresponding descriptive term in the reference list to determine a confidence score for

9   each item classification;

10   ranking the item classifications for each found descriptive term using the

11   compiled confidence scores.

1   25.   The method of Claim 24 wherein searching the reference list comprises

2   successively executing a plurality of searches, each successive search having more

3   general criteria and wherein compiling the confidence scores comprises adjusting the

4   confidence scores so that a score is lowered for each successive search in which the

5   corresponding descriptive term is first found.

1   26.   The method of Claim 24 further comprising presenting the item

2   classifications and rankings to a user.

1   27.   The method of Claim 24 further comprising:

2   receiving a designation of at least one item classification from the user; and

3   classifying the item in the designated classifications.

1   28.   The method of Claim 24 further comprising automatically classifying an

2   item if the confidence score is above a threshold and presenting the selected item

3   classifications to the user if the confidence score is below the threshold.

1   29.   The method of Claim 24 wherein the descriptive terms in the reference list

2   are associated with possible attributes of the item and wherein the confidence score

3   depends upon the attribute with which the descriptive term is associated.

1   30.   The method of Claim 24 wherein searching comprises searching for

2   descriptive terms associated with the same attribute as the attribute of the item associated

3   with the searched descriptive term.

1   31.   The method of Claim 24, further comprising:

2   classifying the item in at least one of the item classifications for a found

3   descriptive term; and

4   supplementing the reference list with descriptive terms associated with the item.

1   32.   The method of Claim 24 wherein the reference list comprises an

2   engineered knowledge base, the engineered knowledge base comprising at least one of a

3   primary engineered knowledge base of key item attribute values, an engineered

4   knowledge base of a classification schema, and an engineered knowledge base of an

5   alternated classification system.

33.   The method of claim 24 wherein the engineered knowledge base of a

2   classification schema contains a plurality of item classifications mapped to a second

3   classification schema.

1   34.   A machine-readable medium having stored thereon data representing

2   sequences of instructions which, when executed by a machine, cause the machine to

3   perform operations comprising:

4   selecting an attribute of the item;

5   comparing the value of the attribute of the item to a set of possible attribute

6   values, the possible attribute values being associated respectively, with item

7   classifications;

8   selecting at least one item classification for the item based on the comparison; and

9   determining a confidence score for each selected item classification for the item.

1   35.   The medium of Claim 34, further comprising instructions which, when

2   executed by the machine, cause the machine to perform further operations comprising:

3   selecting a second attribute of the item if one selected item classification does not

4   have a sufficiently high confidence score;

5   comparing the value of the second attribute of the item to a set of possible second

6   attribute values, the possible second attribute values being associated, respectively, with

7   item classifications;

8   selecting at least one item classification for the item based on the second

9   comparison; and

10   determining a confidence score for each selected item classification of the second

11   comparison.

1   36.   The medium of Claim 34, further comprising instructions which, when

2   executed by the machine, cause the machine to perform further operations comprising:

3   comparing the value of the attribute of the item to a second set of possible

4   attribute values, the possible attribute values being associated respectively with the item

5   classifications;

6   selecting at least one item classification for the item based on the second

7   comparison; and

8   determining a confidence score for each selected item classification for the item.

1   37.   An apparatus for classifying an item, the item having a plurality of

2   attributes, each attribute having a value, the apparatus comprising:

3   a classification knowledge database containing a plurality of values, each

4   associated with at least one category;

5   a search engine to select an attribute of the item, to compare the value of the

6   attribute of the item to a set of possible attribute values of the classification knowledge

7   database, to select at least one item classification for the item based on the comparison,

8   and to determine a confidence score for each selected item classification for the item.

1   38.   The apparatus of Claim 37 wherein the search engine is further to select a

2   second attribute of the item if one selected item classification does not have a sufficiently

3   high confidence score, to compare the value of the second attribute of the item to a set of

4   possible second attribute values, of the classification knowledge database, to select at

5   least one item classification for the item based on the second comparison, and to

6   determine a confidence score for each selected item classification of the second

7   comparison.

1   39.   The apparatus of Claim 37 wherein the search engine is further to compare

2   the value of the attribute of the item to a second set of possible attribute values, the

3   possible attribute values being associated, respectively, with the item classifications, to

4   select at least one item classification for the item based on the second comparison, and to

5   determine a confidence score for each selected item classification for the item.